

$$a^2 = 1 - b^2, \quad c = \frac{a}{b}, \quad d = \frac{1}{b}$$

① Find a if $d = 1$ $a = 0$

② Find b if $c = 6$ and $a = 2$ $b = \frac{1}{3}$

③ Find a if $b = \frac{3}{4}$ $a = \pm \frac{\sqrt{7}}{4}$

④ Find $b, c,$ and d if $a = \frac{2}{3}$ $a^2 = 1 - b^2$
 $\left(\frac{2}{3}\right)^2 = 1 - b^2$

⑤ Find a if $d = \frac{11}{4}$
 $d = -\frac{\sqrt{105}}{11}$

$$\frac{4}{9} = 1 - b^2$$

$$b^2 = 1 - \frac{4}{9}$$

$$b^2 = \frac{5}{9}$$

$$b = \pm \frac{\sqrt{5}}{3}$$

$$a^2 = 1 - b^2$$

$$a^2 = 1 - \left(\frac{3}{4}\right)^2$$

$$a^2 = 1 - \frac{9}{16}$$

$$a^2 = \frac{16}{16} - \frac{9}{16}$$

$$\sqrt{a^2} = \sqrt{\frac{7}{16}}$$

$$a = \pm \sqrt{\frac{7}{16}} \rightarrow \frac{\sqrt{7}}{\sqrt{16}} = \pm \frac{\sqrt{7}}{4}$$

$$\frac{\frac{2}{3}}{\frac{\sqrt{5}}{3}} = \frac{2}{3} \cdot \frac{3}{\sqrt{5}} = \frac{2}{\sqrt{5}}$$

$$c = \pm \frac{2\sqrt{5}}{5}$$

$$d = \frac{3}{\sqrt{5}} \pm \frac{3\sqrt{5}}{5}$$

$$\sin^2 x + \cos^2 x = 1$$

$$\sin^2 x = 1 - \cos^2 x$$

$$\cos^2 x = 1 - \sin^2 x$$

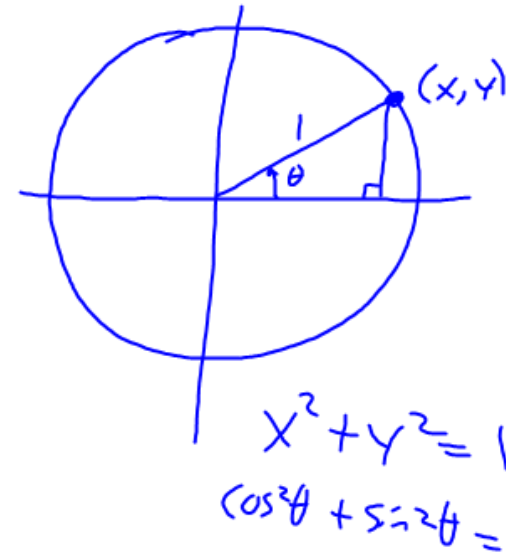
Quotient Identities

$$\tan x = \frac{\sin x}{\cos x}$$

$$\cot x = \frac{\cos x}{\sin x}$$

$$\frac{\sin^2 x}{\cos^2 x} + \frac{\cos^2 x}{\cos^2 x} = \frac{1}{\cos^2 x}$$

$$\tan^2 x + 1 = \sec^2 x$$



$$\frac{\sin^2 x}{\sin^2 x} + \frac{\cos^2 x}{\sin^2 x} = \frac{1}{\sin^2 x}$$

$$1 + \cot^2 x = \csc^2 x$$

Pythagorean Identities

$$\sin^2 x + \cos^2 x = 1$$

$$\tan^2 x + 1 = \sec^2 x$$

$$1 + \cot^2 x = \csc^2 x$$

$$\tan x = \frac{\sin x}{\cos x}$$

$$\cot x = \frac{\cos x}{\sin x}$$

$$\cos x = \frac{3}{4}$$

Find $\sin x$

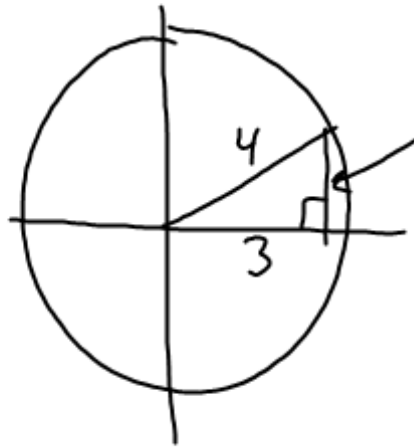
$$\sin^2 x = 1 - \cos^2 x$$

$$\sin^2 x = 1 - \left(\frac{3}{4}\right)^2$$

$$\sin^2 x = 1 - \frac{9}{16}$$

$$\sqrt{\sin^2 x} = \sqrt{\frac{7}{16}}$$

$$\sin x = \pm \frac{\sqrt{7}}{4}$$



Sect. 5.1

#1-8, 21
(use ident.) (don't use ident.)

29-38